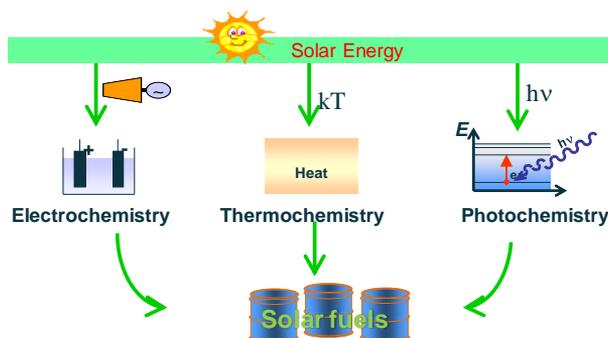




H2020 SUN-to-LIQUID Scientific Workshop

Production of solar fuels for road transport, aviation and shipping:
technology development and market uptake



Dates: October 10th -11th, 2018
Venue and host: IMDEA Energy Institute
Avenida Ramón de la Sagra, 3.
28935 Móstoles, Madrid, Spain

Decarbonising the road, aviation and shipping transport sectors becomes a top priority for the forthcoming decades and should receive highest attention in renewable energy deployment strategies and CO₂ emissions reduction programmes. In June 2018, a much stronger political commitment on renewable energy target has been reached, once negotiators from the Commission, the European Parliament and Member States have agreed to increase the EU renewable energy target for 2030 from 27% to 32%. This challenging target involves not only electricity but all forms of energy use including transport fuels. Such a degree of renewable energy penetration in transport is only achievable if a real market deployment is reached by low-carbon technologies like the production of solar fuels.

The Scientific Workshop is meant to present an updated vision and promote discussion on the development of solar-driven technologies via the three main conversion routes (electrochemical, thermochemical and photochemical) or combinations of them. Distinguished speakers will provide lectures on recent developments. Members of the SUN-to-LIQUID consortium will present the advances achieved in the project.

The participation is free of charge, requires registration and it is limited to a maximum number of 90 participants. Participants may also present their activities and developments at a specific poster session and be active in providing comments and inputs during the round table and technical discussions.

Registration required: to register for the event, please fill in the online [registration form](#).

For more information about the project, visit [SUN-to-LIQUID](#) webpage.

For additional information, email us at s2l-sw@eurtd.com or write at the [contact form](#).

IMPORTANT NOTE: Please bring your valid identification proof for the security check to the venue. Also, please note that the travel costs should be borne by the participants.

1. Agenda

Day 1 – SUN-to-LIQUID Scientific Workshop - 10.10.2018			
Time	Δt	Item	Speaker
13:00	60 min	Welcome at IMDEA Energy and informal buffet lunch	
14:00	60 min	Solar thermochemical fuel conversion – Part 1 (2 Speakers) <ul style="list-style-type: none"> SUN-to-LIQUID project overview and system-level perspectives (30 min) SUN-to-LIQUID Solar concentrator facility (30 min) 	A. Sizmann (Bauhaus Luftfahrt, Germany) M. Romero (IMDEA Energy, Spain)
15:00	30 min	Coffee break	
15:30	60 min	Research facility – Technology tour	ALL
16:30	90 min	Solar thermochemical fuel conversion – Part 2 (3 Speakers) <ul style="list-style-type: none"> SUN-to-LIQUID Solar thermochemical fuel conversion (30 min) Particle reactor technology for thermochemical fuel conversion (30 min) Solar-driven thermochemical processes for fuels production: technology roadmap and EERA programme. (30 min) 	E. Koepf (ETHZ, Switzerland) T. Kodama (Univ. Niigata, Japan) M. Roeb (DLR, Germany)
18:00	10 min	Wrap up	M. Romero
18:10	60 min	Optional: Tower receiver platform – Technology tour	Special interest group
18:10		End of Workshop Day 1	

Day 2 – SUN-to-LIQUID Scientific Workshop - 11.10.2018			
Time	Δt	Item	Speaker
09:20	10 min	Welcome and introduction Day 2	M. Romero
09:30	60 min	Photo-electrochemical fuel conversion (2 Speakers) <ul style="list-style-type: none"> PV and PEC devices for the generation of fuels from sunlight (30 min) Sustainable fuels and chemicals with solar energy and CO₂ (30 min) 	A. Mendes (Univ. Porto, Portugal) V. de la Peña (IMDEA Energy, Spain)
10:30	60 min	Poster session with coffee and snacks	
11:30	60 min	Solar electricity generation and electrolysis (2 Speakers) <ul style="list-style-type: none"> Advanced electrolysis technologies (30 min) Co-electrolysis for efficient renewable energy storage (30 min) 	A. Castro, (H2B2, Spain) S. Diethelm (SOLIDPower, Italy)
12:30	75 min	Final panel on progress and perspectives (Moderator and 4 Panelists) <ul style="list-style-type: none"> Panelist statements (10-13 min) Panel discussion (35 min) 	Moderator: A. Sizmann Panelists: T. Kodama (SIP, Japan) V. de la Peña (SUNRISE, Spain) C. Beuttler (Climeworks, Switzerland)
13:45	15 min	Wrap up of Scientific Workshop	M. Romero
14:00	60 min	Buffet lunch	
15:00		End of workshop	

2. Technical sessions (oral and poster)

Oral sessions integrate invited keynotes from prestigious experts and scientists providing insight and basis for discussion on different solar-to-fuel conversion routes.

Technical sessions will take place at the Auditorium of the Institute IMDEA Energy

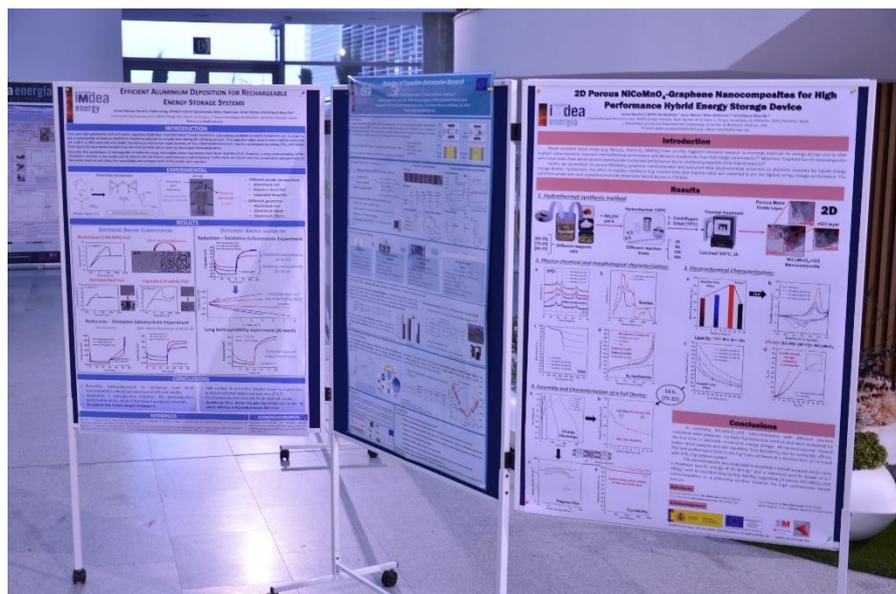


POSTER SESSION:

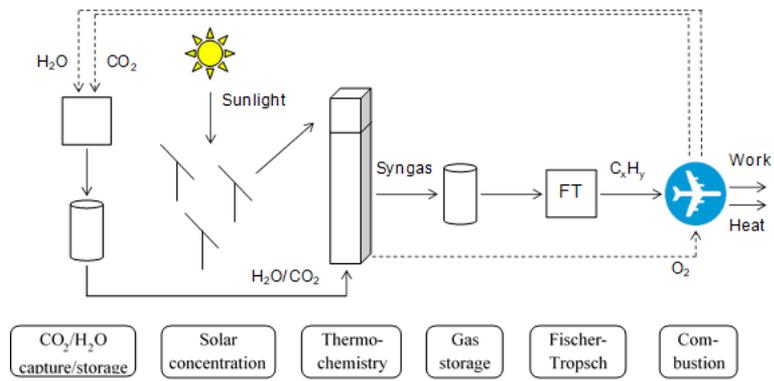
All registered participants are kindly invited to disseminate their research and results with poster communications (30 poster slots available). Posters will be on display throughout the whole workshop at the dining area and a specific poster session will take place on October 11th at 10:30.

If you plan to present a poster, please inform us by filling this option in the registration form with tentative title. The list of poster titles and author names will be included in the final programme.

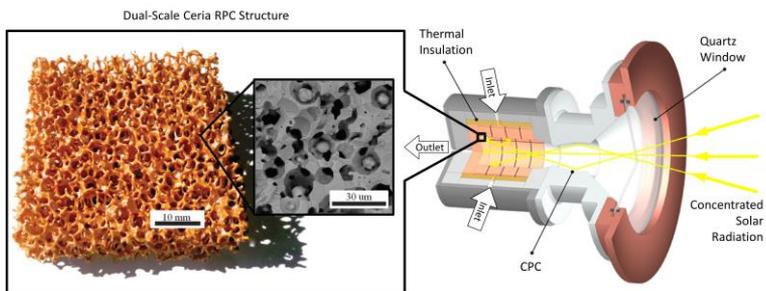
Though not compulsory, posters are preferably expected to fit A0 size in vertical portrait as shown in the picture below. Fixing material will be available at the site.



3. Technical visit to SUN-to-LIQUID experimental field



- **250 kW high-flux solar concentrating system**
 - 50 kW radiative power at 2500 kW/m² over 16 cm aperture
 - Fully-dedicated heliostat field of 169 heliostats, 3-m² each, with short focal lengths.
- **50 kW solar thermochemical reactor system**
 - 50 kW solar reactor system for producing syngas from H₂O and CO₂ via ceria based thermochemical redox cycle
 - Boost reactor efficiency by factor of 3 (from average 2% to average 6%)
- **Gas-to-liquid conversion Fischer-Tropsch system**
 - Fischer-Tropsch system to convert the syngas to liquid hydrocarbon fuels



4. Logistics

➤ Accommodation

IMDEA Energy recommends the following hotels:

Hotel Ciudad de Móstoles (Closest hotel)

Ctra. Móstoles-Villaviciosa de Odón Km. 0,200; 28931, Móstoles, Madrid

Tel: +34 916 140 669, Email: recepcion@h-ciudadmostoles.com

<http://www.hotelciudadmostoles.es/en>

Hotel is 10 minutes walk away from IMDEA premises, 8 minutes walk from the train station El Soto and 20 minutes walk from the metro station Universidad Rey Juan Carlos (see map below).

Booking can be made by phone or per e-mail. Please provide the booking reference “IMDEA Energía” to benefit from normal price.

IMDEA reduced rates: 65€ for a single room, breakfast and VAT included. 75€ for a double room, breakfast and VAT included

Sercotel Spa La Princesa

Carretera M-506 Km. 9, salida Móstoles centro, 28922 Móstoles, Spain

<https://www.laprincesa.com/>

Hotel is about 1.9 km from the train station renfe Mostoles central. From there you may take a train to Mostoles El Soto station to IMDEA Energy.

Price about 65 euro per night (breakfast not included)

Hotel Ibis budget Madrid Alcorcón Móstoles (cheapest option)

Travesía de Móstoles nº3 N 40°20'2.75"W 3°51' 14.60, 28921, Alcorcón, Spain

<http://www.ibis.com/gb/hotel-3201-ibis-budget-madrid-alcorcon-mostoles/index.shtml>

Hotel is about 1.2 km from train Station of Mostoles Central. From there you may take a train to Mostoles El Soto station to visit IMDEA Energy.

Price about 43 Euro per night (breakfast not included)

Hotel NH Alcorcon (another option)

Edificio A, Av. de Europa, 2, 28922 Alcorcón, Madrid, Spain

Hotel website : HotelnhAlcorcon

From hotel you can take metro at station “Parque Oeste” and get out at the next stop “Universidad Rey Juan Carlos”. From University just cross the campus and the bridge to IMDEA Energy.

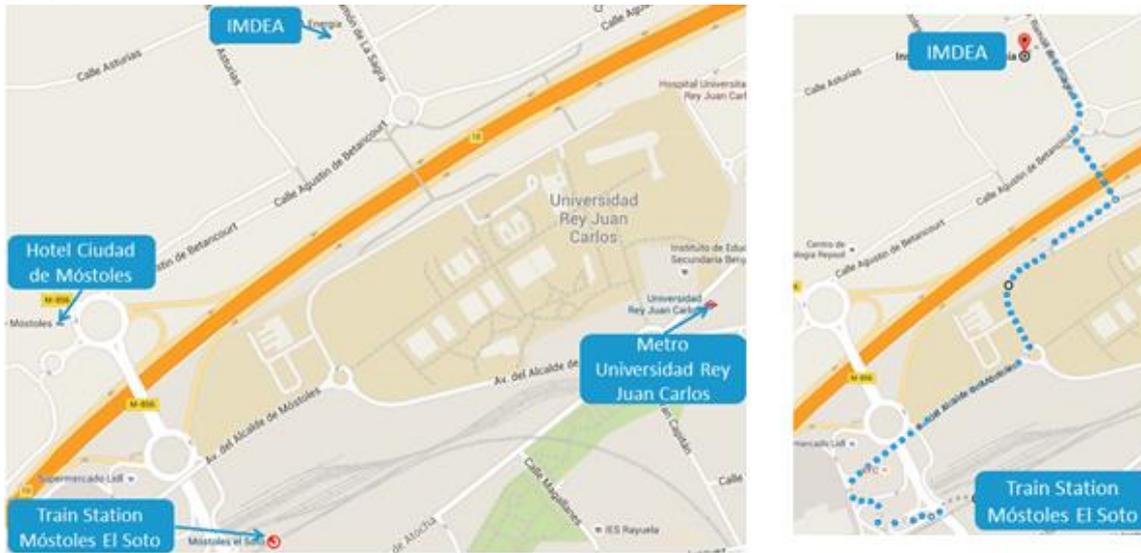
Prices between 60-80 Euro per night.

➤ Directions

In case you would prefer staying in Madrid downtown, you will be able to easily reach IMDEA Energy either by metro or by train (see information below). Please count with about 30 minutes journey each way. The city of Móstoles is located in the South West of Madrid and the Airport Madrid-Barajas is in the North East of the city.



IMDEA Energy premises are about 15 to 20 minutes walking distance from the regional train station Móstoles El Soto. It is recommended to **follow a path via the Rey Juan Carlos University Campus** as shown on the right map above.



By taxi

- From the airport to IMDEA Energy or Hotel Ciudad de Móstoles: count with 30 minutes and between 50-60€
- From Madrid centre to IMDEA Energy or Hotel Ciudad de Móstoles: count with 25 minutes and between 25-30€

By public transport

- From the airport, it is recommended to take the regional train called “Cercanias” and departing from terminal 4 at Madrid Barajas. There is a bus connection between terminal 2 and terminal 4.
- In terminal 4, you will have to buy a train ticket to Móstoles El Soto.
- From the terminal 4, take the line C1 heading to Atocha Railway Station and get off at Atocha Station.
- From Atocha Station, take the line C5 heading to Móstoles EL Soto, which is the final station. Get off there.
- It will take you ca. 1:10 hour and cost around 2.70 €. The line C1 to Atocha departs every 30 minutes and the line C5 to Móstoles El Soto departs every 10 minutes.
- Timetables for regional train can be consulted [here](#).

Alternative route:

- Atocha Station can be reached with the Express bus airport departing from the airport every 15-20 minutes. The journey to Atocha Station by bus takes ca. 30 minutes depending on the traffic. You will need to purchase separate ticket for the train and the regional train.
- Further information on the Express bus airport can be found [here](#).
- From Atocha Station to Móstoles El Soto, please follow instructions above.

Parking information:

- Please note that parking not a problem IMDEA Energia, as the building is located in a technology park and there are no other buildings in the vicinity. Plenty of free parking available on the street.